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The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

HOW I BECAME INTERESTED IN MINERALS

By WM. PFEIFER, JR.

Hackensack, N. J.

For years I have been hiking through the woods, especially the Bear Mt. Park section of S. E. New York, interested in everything that nature had to offer, among these were rocks. The rocks, however, all seemed to look more or less alike. I would visit an old iron mine and would wonder which of the rocks picked up was the iron.

One Saturday in the fall of 1941, my hiking partner, Frederick Lewis, of Paterson, N. J., and I, while on a hike which took us over the new Route 9W, back of Storm King Mt., a few miles north of Bear Mt., noticed that the exposed face of the rocks cut out for the road, had a variety of color and we immediately became interested. I picked up several pieces, one with red spots on it.

When we returned to Bear Mt. Park, we decided to stop at the Trailside Museum, to ask Mr. Carr, the Curator, to identify our rocks, especially the red spotted one. We called at his office and showed our find. "Well," he said, "you came just at the right time. Meet Mr. Zodac, the Editor of ROCKS & MINERALS. He knows all about rocks." Mr. Zodac identified the red spots, at a glance, as garnet.

When I heard garnet, I really became interested, for I had always associated garnets with far off places like India. I guess from that day on I was a rocks and minerals fan.

Our Editor may not recall that meeting but thanks to him I am now enjoying one of the most delightful hobbies. I now have a nice collection of minerals, a few books, and a small laboratory equipt to do blowpipe analysis.

OLD MINE LEASED BY R & M A MEMBER

Many years ago mica was found on the Wentworth farm at Canton, Maine, and the deposit was opened up and worked. Later the mine was acquired by the late Thomas Reynolds who operated it for years in a crude way. For the past 45 years the mine has been idle. During July, 1944, the mine was leased by Dr. Chas. Darrington, of Canton, Me., who has engaged the Doughlas Mining Corp., of Portland, Me., to operate it for him.

In its day the old mica mine was noted for chrysoberyl (as well as feldspar and mica) and a sharp lookout will be kept for the mineral. Dr. Darrington is a member of the Rocks and Minerals Association and being keenly interested in minerals will keep us informed when any interesting or unusual minerals are uncovered in the mine.

Incidently Dr. Darrington informs us that Mr. Reynolds had a fine collection of minerals which were often displayed at numerous state and county fairs—up to date he has been unable to find or even obtain a trace of them. If any reader knows what has become of this collection, Dr. Darrington would be glad to hear of it.

A Loyal Member

I have shown my collection to quite a few people and have gotten many of them interested in starting a collection. In this way I hope to obtain some more members for the Association.

Mike Almasi,
Bremerton, Wash.

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WORLD'S GREATEST GEM STONE EXHIBITION

By CLARK HARRISON
Pacific Coast Correspondent for ROCKS and MINERALS

NOTE: *All photos courtesy of Two Bells Magazine. All views were taken at Hollywood Exhibition.*

Because of the War conditions, the world's greatest and largest gem stone exhibition, heretofore held annually at Los Angeles, Calif., by the Los Angeles Lapidary Society, will not be held this year. But this society maintains great interest in the lapidary art and plans are under way to continue this great annual event when war is over.

The Los Angeles Lapidary Society, greatest of its kind in the world, was organized in February, 1940, with 16 amateur gem cutters forming its nucleus, for the original purpose of improving its members in the lost art of cutting and polishing gem materials. Its membership is composed largely of business and professional men and women whose mineralogy hobby developed into a desire to do something with the many fine specimens they gathered from desert, mountain, and seashore areas, to enhance their beauty and to preserve them for future generations.

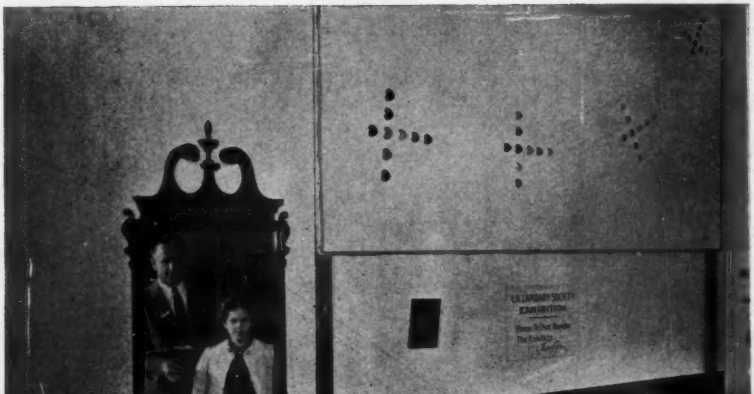
Their first exhibition was held in the Swimming Stadium Building in Los Angeles, March 22-23, 1941, and was a glittering success. The attendance reached 6000. Many thousands of specimens of cut and polished semi-precious gem stones of California and neighboring states were displayed, as well as much imported material, cut and polished here.

There were 74 exhibits, 15 of these belonging to lady lapidists and 25 of them belonging to novices (with less than a year's experience). There were 75 eight-foot tables covered with gorgeous specimens, several upright cases, and many rough specimens of ores. One outstanding specimen in the latter class was the 154 pound specimen from the Tri-State District near Picher, Oklahoma, displayed by O. C. Smith of Long Beach, Calif., which contained nice crystals of galena, chalcopyrite, calcite, sphalerite, marcasite, and dolomite, all growing in one common matrix. A dark room contained an unusual display of beautiful fluorescent and phosphorescent materials. The show, free and open to the public, was recorded in colored motion pictures.

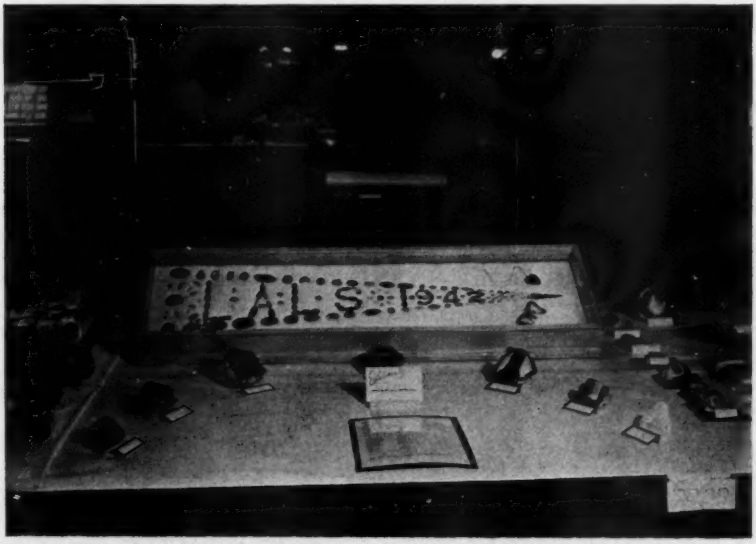
The second annual show of this society was held May 16-17, 1942, at Hollywood, —"where everything is colossal, stupendous, extravagant", etc.,—and this exhibition was truly the largest and grandest gem stone exhibit ever held anywhere.

The show was housed in one large room in the Hollywood Masonic Temple. Over 5000 visitors, from Alaska to Africa, came to see the gorgeous array of cut stones. Eighty exhibitors displayed 11,086 items, including cabochons, facet cut gems, slabs and flats, novelties and silver jewelry craft.

Again this magnificent show was given on May 15-16, 1943, at the Los Angeles Swimming Stadium Building. But the effects of the war had hit home. Transportation had become a problem with gas rationing; and the army prohibited parking within several blocks. Even so, 4,095 visitors attended to view the superb array of 12,235 separate items. Some of the outstanding items were:



J. H. McCornack and daughter, look with pride at their vanity set which won special award.



Doyle Rishel displayed a pennant made of cut gemstones.

A domestic scene: a building plot with victory garden of rows of growing vegetables; the back yard contained a lapidary shop with grinding and polishing equipment, actually working, with mannikin attendants. Petrified woods went into the making of the shop and house, and the doors swung on hinges. In the dining room the table was set with a dinner of "stones"; a cat was sleeping at the door, pigeons with eggs in the nest; the clothes line of opalized wood; outside was a cord of wood, axe in chopping block, bucksaw, with chips on the ground of petrified wood. There was a desert scene with desert plants in a sandy mountain setting, tent cot, camp fire, and a rock under every bush.

Jane Hagar exhibited a large map of the United States with a polished cabochon from every state in its proper place.

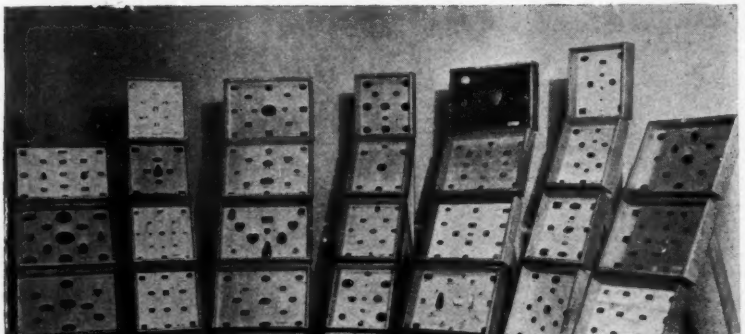
Genn Harmas displayed exceptionally fine slabbed and polished opalized log from the Virgin Valley.

Then there was Jessie Quane's large silver pendant of sea horses in filigree work holding a superb moonstone; a fish cut from stone, complete in every detail, by R. E. Willis; large cabochon of pink tiger eye by Lelande Quick; silver fan set with lapis lazuli, and bubble dancer in silver, set with moonstones, by Susie Kieffer; Indian heads carved from howlite by Ray Kruger; large geode filled with native copper by S. P. Hansen; and unique displays of sagenite transparencies by DeWitte Hagar, and also by Frank Crawford.

Officials of the Los Angeles Lapidary Society are: president, R. E. Willis; 1st vice president, Claude Rosenberg; 2nd vice president, Loren Mitchell; secretary, Goldie Wood; treasurer, Melvin Gainder; librarian and editor, Charles Schweitzer; historian, Lelande Quick.

Membership stands at 200 - 150 active members (who are compelled by by-laws

A society ruling that all material must be finished by exhibitor creates highly competitive rivalry but friendly cooperation among lapidary members.



An interesting display of 457 cut gems from all parts of the world was entered by Frank A. Bruner.

to exhibit work at frequent intervals), and 50 associate members (who do not engage actively in lapidary work and therefore lose voting privileges, etc.). Membership is closed to prevent the society from becoming unweildy.

In normal times the society conducts monthly dinner meetings (with swap shop as well as speakers), takes monthly field trips, conducts its own library, publishes a paper for its members, and puts on an annual exhibition open to the public. The historian photographs all exhibits and keeps records of same. Lelande Quick, first president, and holder of this important office, has worked untiringly for the success of this organiation.

One of the most popular exhibitions of craftsmanship is that of J. Howard McCornack—a beautiful dresser or vanity set, carved from howlite. The delicate black veining of this snow-white borate, which he dug out of Tick Canyon, near Lang, California, is handsomely set off with its mounting of sterling silver. He is also an expert lens grinder and has constructed several telescopes. He keeps one telescope in his shop to view the night skies. McCornack hails from Iowa, and received his education at the university at Ames. One evening I visited his home. I found him in his shop slicing jade he had received from Utah, preparatory to making cabochons. He is a wizard with a lap wheel and is one of the society's most active members.

Another member, Ernest L. Snowberger, originally from Idaho, has demonstrated what a one arm lapidist can do. He lost an arm and leg when a high tension electric cable struck him. He turns out the most beautiful cut—and polish work—so beautiful in fact that he drew a special award for it in the 1941 exhibition. He takes an active part in all of the society's affairs, being treasurer in 1941.

Most of the other members are well known in West Coast mineralogical circles for their splendid work and cooperation and when normal times return we shall again see this great group of people putting on their annual show, truly "the world's greatest gem stone exhibition."

SPECIAL EXHIBIT OF BRAZIL'S MINERAL TREASURES AT THE AMERICAN MUSEUM OF NATURAL HISTORY

Tantalite ore, the rare "black gold" of strategic war minerals, source of tough, corrosion-resisting tanta'um metal, is shown in a special exhibit of *Brazil's Mineral Treasures* at the American Museum of Natural History, in New York City. So valuable are the uses of tantalum in secret war weapons, electronic instruments, synthetic rubber processes and plastic surgery, that it holds the top rating of A-1-A among strategic materials rushed by air to the United States from Brazil.

Through 3,600 square miles of desolate mountain region in the interior, thousands of Brazilian and American miners comb the great pegmatite dikes and alluvial deposits for the hard, black ore usually found clustered with other minerals. Three thousand tons of rock must be mined to get one ton of tantalum ore, and in spite of laborious hand methods of picking, and washing deposits, 52 per cent of the world's highest-grade tantalum is produced in Brazil. Since 1941 that country has made its entire tantalite output available to the United States for war purposes.

In the search for this widely scattered mineral through the many deposits, the Brazilian government has cooperated and established a laboratory at Campina Grande in Paraiba, the center of the mining district for the identification and analysis of ores.

One of the most recent developments of this wonder metal is in plastic surgery. Pliab'e, non-irritating wire, plates and screws of tantalum are used to repair fractured bones, skulls and delicate nerve tissues.

Fine examples of other critical war minerals, such as, beryl, quartz and tourmaline crystals, tungsten and zirconium oxide ores are also included in this collection representing the great and varied mineral wealth of Brazil. The specimens were obtained for the museum by Dr. Frederick Pough, Chairman and Curator of the Department of Geology and Mineralogy, during a recent survey of Brazilian mining areas.

The world's sole source of important baddelyite, or zirconium oxide, is found along the border between Sao Paulo and Minas Geraes, Brazil. The refined metal is used as enamelling for steel plating, shot-welding electrodes, radio transmission tubes, photoflash bulbs and hundreds of other products. The ore is found in narrow veinlets disseminated through an altered rock. In places it is collected as alluvial gravels, having remained behind as the hills were worn down. Elsewhere it is mined from the rock itself.

A new source of tungsten discovered in northern Brazil had made large quantities available to United States steel makers in recent years. The hard, dense qualities of this metal are necessary in the manufacture of fine steels, cutting and die tools.

Brazil is equally famous for its deposits of fine quartz, tourmaline, beryl and aquamarine. In peacetime, these minerals were valued as semi-precious gem stones—now, as vital war materials. Almost all radio oscillator quartz comes from Minas Geraes. A rare quartz crystal with smoky chlorite "phantoms," is shown in the exhibit.

The strategic uses of tourmaline, best known as a gem stone because of its beauty, also depend on the flawlessness of the crystal formation in instruments generating electric current under pressure.

Dr. Pough has included several rare specimens notable for color and formation. One of the beautiful blue-green aquamarine crystals contains a bubble of water and air, preserved within the crystal since its formation in the Pre-Cambrian Age, over a billion years ago. As the aquamarine is tilted, the water bubble floats along the small enclosed channel. When the crystal is eventually cut and the water bubble analyzed, Dr. Pough

(*Continued on page* 273)

CLEAVAGE IN MINERALS[1]

By A. C. HAWKINS, Ph. D.

The manner in which minerals go to pieces when they are broken depends upon their internal structure. Absence of cleavage often indicates that the mineral is an aggregate of minute grains which have no regular arrangement or orientation, as in the case of clay, chalk or ordinary massive limonite. The presence of cleavage, on the other hand, shows that there is an orderly, parallel arrangement of the atoms throughout the mineral. Cleavage takes place among the layers of atoms and groups of atoms or molecules, and results in plane surfaces along the cleavage directions. Excessive twinning in crystals may interfere with the development of good cleavage; examples are afforded by many quartz crystals, and the majority of fluorite crystals from England.

Cleavage is classified as perfect, good, fair, or poor, according to its degree of perfection. In the absence of cleavage, we have fracture, which is described as even or uneven, or conchoidal (curving or shell-like, as in flint), or hackly (as in broken metallic copper), etc.

Other sorts of fractures may resemble cleavage; a great many quartz veins, as well as bodies of other minerals which are encased in solid rock, are sometimes traversed by flat separation planes which may appear like cleavage, but are really what are known to geologists as joint planes; they are related to strain directions due to stresses of earth movements, and are likely to be found to extend into the surrounding wall-rocks.

The presence or absence of cleavage is very characteristic of different mineral species, and is a first-class aid in identifying them. In the refining and separation of minerals during mining and commercial processes, cleavage is of paramont importance. For instance, on account of the perfect one-way cleavage of the micas, their plates may, if small, be easily separated by flotation, or even be caused to separate from other mineral grains thru the use of electric charges. Cleavage in diamond is vital in the splitting of the large, valuable stones into the smaller ones, and the basis for cutting of facets on the finished product. The presence of a splintery fracture in garnet, conversely, makes it ideal for crushing and mounting to make red sand-paper.

Cleavage in one direction is typical of the micas. Topaz also shows one direction of perfect cleavage, which is directly across the prism of the crystal. Other directions which may at times appear in micas are what are called parting planes, and are due to abnormal and often local causes similar to the stresses which produce the joint-planes of geology. Magnetite often shows such parting. The chlorite minerals ordinarily have perfect cleavage which is well developed in one direction, which, however, is often curving or undulating (like dry leaves in autumn); this is called foliation, or foliated structure. It is perfectly developed in much of the best green crystallized talc.

Cleavage in two directions is perhaps best shown in the feldspars, where the directions appear to be at right angles to each other, or nearly so. Their actual angles to each other depend upon the composition of the feldspar. A third direction of so-called cleavage in feldspar is usually poor and little more than a fracture. Three-direction cleavage is shown by a large number of species. If the cleavage directions are inclined to each other at right angles, the resulting fragments are cubes, or rectangular solids, as in galena and halite. The sulphate minerals in general have two of the cleavage directions inclined to each other at angles which are characteristic of each species, but at right angles to the third direction. In the words of the text-book, cleavage directions in such species as barite and celestite are described as prismatic and basal. Gypsum (selenite), showing also three directions,

1. Reprinted from *Mineral Notes and News*, May, 1944, p. 3.

has its principal cleavage along the side (b-pinacoid) of the crystal. The carbonates, including calcite, dolomite, siderite, rhodochrosite, etc., ordinarily have three directions of perfect cleavage, all inclined at angles to each other which are characteristic for each of these species. All of these carbonates belong to the rhombohedral class of the hexagonal system of crystals. But aragonite, which crystallizes in the orthorhombic system, shows one cleavage direction only, and that one is often poorly developed.

Cleavage in four directions is shown by fluorite from many localities, and also by diamond. This results in the production of fragments having the shape of the octahedron, which is a solid bounded by eight faces which are all equilateral triangles. Cleavage fragments of fluorite which are thin and flat, therefore, often have a triangular outline.

There are no known minerals possessing five cleavage directions. Though common in the plant world, pentagonal symmetry does not seem to exist among the minerals. Sphalerite is the only mineral which shows six-direction cleavage. The resulting fragments have the shape of dodecahedrons, which are solids bounded by twelve "diamond-shaped" faces. Examples of good cleavage dodecahedrons of sphalerite are seen in some of the most complete of our mineral collections.

Of all known minerals, however, quartz should be the most remarkable from the viewpoint of cleavage, if its cleavage properties were ever completely developed to any extent. Quartz often shows incipient cleavage-cracks which are parallel to prism faces, and also to the rhombohedron faces. Thus it should show a total of something like nine cleavage directions, if it ever developed them all. Luckily for its successful use in radio crystals and optical work, as well as in jewelry, the cleavage is seldom conspicuous or well-developed.

The cleavage directions in minerals, often indistinct or poorly visible to the unaided eye, become very important and critical factors when the same minerals are studied in thin-sections under the microscope. Their identification by such means is of primary importance in the determination of the relations of these mineral grains in ore-bearing rocks and in structural minerals which are in everyday use.

Fine Mineral Exhibit at Clio, Calif.

The first exhibition of minerals and gem stones of the season in Clio, Calif., was held on July 7th, 1944, at the residence of Mr. Benj. L. Handley.

Many fine specimens were on display but perhaps the most admired group consisted of a number of brilliant and step-cut California quartz crystals belonging to Mr. and Mrs. Earl W. Smith and their daughter, Miss Dorothy. Incidently Miss Dorothy also had on display a beautiful gorgeously colored opal.

The exhibit was well attended, the two outstanding visitors were Mr. Theodore B. Grandboise, Gunners Mate, U. S. Navy, and his bride.

Back Numbers Useful

I continue to find the articles in ROCKS AND MINERALS interesting, informative, and up to date. Like so many others who take the magazine, I have read over my back copies many times. At the present time I am finding them very useful in planning mineral trips after the war.

David M. Seaman,
Carnegie Museum,
Pittsburgh, Penn.

Special Exhibit of Brazil's Minerals

(*Continued from page* 271)

believes the impurities will reveal the same composition as the solutions from which the aquamarine crystallized.

An example of a new Brazilian gem stone, chrysoprase, is also shown. This mineral is a nickel-stained chalcedony from nickel deposits in Tocantins, Goiaz.

The exhibit of *Brazil's Mineral Treasures* will be displayed in the main 77th Street Foyer until November 1st. Backgrounds and lighting effects to show the color and formation of individual specimens or groups of crystals were designed by Miss Katharine Beneker, of the Division of Special Exhibitions.

WILLIAM H. BALL (1881-1944)

The sad news of the death on April 6 last, of William H. (Billy) Ball, was a great and unpleasant shock to the host of people to whom Billy had become as integral a part of Franklin as the Zinc Company itself. The death was sudden, he was sick only two days.

Mr. Ball was born in Franklin, N. J., in 1881, the son of Mr. and Mrs. Geo. E. Ball, and lived there his entire life. In 1895, at the age of 14 years, he entered the employ of the New Jersey Zinc Company, in Franklin, N. J., as a water boy. He continued with the company till the time of his death, a continuous span of 49 years. He wore with pride the service pin awarded him by the company commemorating 45 years of faithful service.

In 1902 he married Nellie R. Thorp at Ogdensburg, N. J. Three children survive, now respectively, Ralph, aged 40, Edward, aged 39 and Sara, aged 37.

Mr. Ball worked at many different jobs in the employ of the company, becoming fireman and then about 1920 became hoisting engineer. In 1923 he suffered a nervous breakdown and was incapacitated for over three years. Unable to return to the engines, he was, in 1926, assigned to the picking table at the head of the Palmer shaft. He was "on" the table for some ten years and then was assigned to the mill where he was working at the time of his death.

Billy began collecting early and knew many prominent collectors personally. His collection was one of the "sights" of Franklin and many a collector has stood in front of the case which held it, as one, who, having seen it, had seen everything.

Billy's death was a personal loss to his family and to his many friends, but, in a great measure, it was another loss in that it marked the close of the epoch of great personal interest and great personal collections in Franklin. There are still one or two great collections in Franklin but the handwriting is on the wall. The great days at Franklin are over. A large variety of causes and interreactions have brought things to their present pass. In the early days there was easy access to the workings and when the work went deep underground, the dumpage of the Parker Shaft was dumped in the open where it too was easily accessible. Franklin was comparatively difficult of access before the days of the auto and the men who went to Franklin were personal friends of some one living there. Consequently there was little conduct objectionable to the Zinc Company. After World War 1 this picture changed rapidly. Franklin became a short trip from the great centers of New York and Philadelphia. Mineralogically interested people flocked to the mines. Their very numbers were a test to the company and the changed quality of their makeup was yet more a matter of concern. The result was more and more restrictions on the activities of collectors and a greater and greater difficulty in getting any of the mineral treasures so abundantly bestowed on the Franklin area. It is at this point that the personal history of Billy Ball fits into the pattern at a very vital juncture. Billy went on the picking table in 1926, when restrictions were making themselves felt. He continued there for 10 years and during those years was a watchdog for the Company to keep undesireable elements out of the ore being treated and also was a mineralogist with an open eye for anything unusual. This open eye served two purposes, one it protected the company to the extent that if anything unusual came thru, it was at once noticed and, as the laboratory was always close to the picking table, if there was anything deleterious in the new substance, it was quickly detected and eliminated before it could do harm. Secondly, and this is important from the mineralogist's viewpoint, many new minerals were brough to the attention of the world that otherwise possibly would have gone into the crushers and been lost forever.

For the ten years that he was on the table, Billy performed these double duties with singular ability and success. In 1936 he was removed from the table and assigned to other duties. The full circumstances will probably never be known but some of them are and are here told for the first time.

There was at the time (1935-36) an occurrence of an unusual number of zincite crystals. A collector carried the news back to Philadelphia. The news created a furore. Zincite crystals were always rare and anything resembling a "find" was a mineralogical sensation. A number of Philadelphia collectors, without the knowledge of the original bringer of the news, sent a letter to Billy Ball making inquiries about the accessibility of the crystals. The letter was inadequately addressed and it eventually found its way to the offices of the Zinc Company. Billy was called in and told that the company did not approve of its employees being in the business of supplying minerals. Shortly thereafter Billy was taken from the table and a new policy was inaugurated on the picking table: that is men were "rotated", no one man remaining more than three months. It was about this same time that passes to individuals to visit the picking table were also greatly restricted, and passes, hard to get before, became practically impossible to procure.

On the picking table at Franklin, P. J. McGovern, Billy Garrity, and lastly Billy Ball gave valuable service to their company and invaluable service to the science of mineralogy by saving a few of the beautiful things that passed by in the years they were there. We are all a combination of the practical and the ab-

stract. Billy Ball had his measure of the practical but in a very strong way he had the mineralogist's zeal when handling the minerals of Franklin. A mineral in his hands was a mineral, yes, but it was more. It was a living thing, almost breathing and telling its own story of its own particular claim to glory in the world of minerals.

The picture for the future is dark. The company is definitely hostile to the whole mineral tribe. And certainly not without reason. Like a swarm of locusts they descend on Franklin to get what they want. The Zinc Company is in business to mine and market zinc and collectors and collecting are not their concern. When these collectors violate private property with impunity, bribe the employees to throw bags of ore over the fences, climb over fences and go down into deep cuts that may at any moment collapse under their feet and do various other things of like nature, they become definite nuisances and the hostile attitude of the company is easily understood. At the same time all collectors are not roughnecks and the death of Billy and the others like him, the restrictions on the picking table, and the disappearance of unfenced dumps, practically "close" Franklin to collectors. It would seem that some middle ground is possible where the average collector, not fundamentally an indecent character, could legally collect at Franklin.

There are still specimens available at Franklin to those who may have the "gas". Individual miners may have a few pieces and anyone having entree to the laboratory, has access to specimens. Honest folks dislike the furtive sneaking about from place to place necessary in going from miner to miner and only a comparative few mineralogists are known at the laboratory, so Franklin collecting has fallen to a strange estate indeed. Most miners are comparatively untrained in differentiating mineral species and of a group of 50 pieces in a miner's house no more than five will have any great merit. So after one has specimens of ten or twenty "common" minerals, collecting becomes very difficult.

What the final result will be is impossible to say. Perhaps this article may be of some service in breaking ground for a rapprochement between reputable collectors and the sources at Franklin. Certainly Billy, fine character that he was, would have wanted it so. His whole life, outside his family, was centered around two things—his work for the company and his devotion to mineralogy. Let us hope that a way can be found. J. K. FISHER.

DAVID HALE NEWLAND

APRIL 7, 1872 - OCT. 18, 1943

Dr. David Hale Newland, retired state geologist of New York, died on Oct. 18, 1943, at the age of 71.

Dr. Newland was born on April 7, 1872, at Vienna, N. Y., the son of Josiah and Sarah (Skinner) Newland. Most of his early life until his college years was spent in Camden, N. Y., about 30 miles N. E. of Syracuse, and it was here that he received his early education in the Camden grade and high schools. He was graduated from Hamilton College in 1894 with the degree of Bachelor of Arts. He chose geology as his life work. Through a legacy from an aunt and a fellowship from Hamilton College, Dr. Newland was able to continue his studies of geology, first at the University of Munich (1894) and then at the University of Heidelberg (1895-1896). After his return from Germany, Dr. Newland enrolled at Columbia University (1896-1897).

His first connection with the New York State Geological Survey was as a temporary field assistant (1897-1898). On Dec. 1, 1904, he became a permanent member of the staff, resigning June 30, 1920, to do independent consulting work. On Sept. 1, 1927, he returned as State Geologist, which office he held until June 30, 1940, when ill health forced him to retire.

In 1933 he received the honorary degree of Doctor of Science from his Alma Mater.

Dr. Newland belonged to no clubs or other organization except scientific societies. He was a Fellow of The Geological Society of America, Fellow of the American Association for the Advancement of Science, Member of the Association of American State Geologists, Member of the Society of Economic Geologists, Member of the American Institute of Mining and Metallurgical Engineers, and Member of the Rocks and Minerals Association (since May 20, 1935).

Dr. Newland was the author of many geological papers and reports but to members of the Rocks and Minerals Association he may best be remembered for his two interesting articles which appeared in ROCKS AND MINERALS. These articles are:

Minerals of Whiteface Mountain, N. Y., June, 1935, pp. 81-82.

Herkimer County Quartz Crystals, Feb. 1937, pp. 36-37.

Dr. Newland was married in 1907 to Milla Little, of Menands (suburb of Albany, N. Y.,) where in later years he built his home. Besides his wife he is survived by three children, Milla E., Lydia M., and Charles W. L. Newland.

A very fine memorial to Dr. Newland, by Rudolf Ruedemann and Winifred Goldring, appeared in the Proceedings of the Geological Society of America, Annual Report for 1943, pp. 209-216. Published by the Society in April, 1944.

EMIL ALFRED STARZ

SEPT. 18, 1865 - JULY 20, 1944

Dr. Emil Alfred Starz, dean of Montana's pharmacists and nationally known chemist and bacteriologist, died at 1:00 p.m., Sunday July 20, 1944, at his home at 730 8th Ave., Helena, Mont. He was 78 years old.

Dr. Starz was born in Stuttgart, Germany, on Sept. 18, 1865. After graduation from the University of Stuttgart, as a chemist and pharmacist, he followed his profession in Germany for several years, but in 1891 he came to the United States and Helena where he made his future home.

Soon after his arrival in Helena, he opened his first drug store on Rodney Street. Due to his efficiency, friendliness, and attention to the wants of his customers the business prospered and in 1906 he was able to open a larger establishment—the Starz Pharmacy—on W. 6th Avenue, which he conducted until 1919 when he sold it and went to the state livestock sanitary board. He retired in 1930.

Dr. Starz received an honorary degree from the Montana State University, was bacteriologist for the state board of health, served as a representative in the 9th state legislature, was a member of the board of park commissioners, and a Helena school trustee. He was president of the Montana Veteran Druggists Association.

He served on the American Chemical Society's prize essay contest committee and was a member of the American Pharmaceutical Association, the Montana branch of the American Chemical Society, and the state association.

He was affiliated with the Masonic orders and the Scottish and York rites as well as the Algeria shrine.

Dr. Starz' interest in minerals began at an early date. He was a discriminating collector of minerals and a keen student of mineralogy. His was a general collection, mainly choice and selected specimens from all over the world but he also speciallized in precious opals and in polished minerals. The local mineralogists as well as those who travel through Helena have lost a good friend, an able mineralogist, and a genial host.

Dr. Starz was a member of the Rocks and Minerals Association since Jan. 6, 1934.

Surviving are his widow, Mrs. Tekla Starz, three children, Oscar Starz, Mrs. J. Miller Smith, and Mrs. A. E. Peterson, all of Helena, and four grandchildren.

BULLETIN 125

MANGANESE IN CALIFORNIA

Including

Outline Geologic Map of California

Showing Locations of Manganese Properties

(Economic Mineral Map No. 5—Manganese)

387 pages, 46 figures, map.

During time of war when the steel industry is hard pressed for essential war materials, manganese becomes critically strategic in the United States, because imports cannot be depended upon, and domestic sources are limited. Every deposit in California, large or small, high or low grade, becomes a possible potential source upon which the industry may draw.

Manganese in California, just off the press and ready for distribution, is an important contribution to wartime literature; it is a record of investigations carried on during the present war, and during World War I, by the Geological Survey, United States Department of the Interior; Department of Geological Sciences, University of California; and Department of Mining, Stanford University, in cooperation with the Geologic Branch of the State Division of Mines. The bulletin has been prepared under the direction of Olaf P. Jenkins, Chief Geologist of the Division of Mines.

CONTENTS

History of the manganese industry, by Robert Scott Kroger, pp. 13-21.

Occurrence and minerals of manganese, by Theo. H. Crook, pp. 23-40.

Utilization of California manganese ores, by O. Cutler Shepard, pp. 41-49.

Manganese deposits of California—a summary report, including tabulated data on manganese properties of California, by Parker D. Trask, Ivan F. Wilson, and Frank S. Simons, pp. 51-215.

Genesis of the manganese deposits of the Coast Ranges, by N. L. Taliaferro and F. S. Hudson, pp. 217-275.

Manganese deposits of the Sierra Nevada, their genesis and metamorphism, by N. L. Taliaferro, pp. 277-332.

Outline geologic map of California, showing locations of manganese properties, scale 1:1,000,000.

Bulletin 125 is bound in cloth. It may be purchased from the State Division of Mines, Ferry Building, San Francisco 11; State Office Building No. 1, Sacramento 14; State Building, 217 West First Street, Los Angeles 12; for $3.00 plus 8c sales tax for California residents.

BRAZIL HAS BIGGEST MINING BOOM SINCE GOLD RUSH OF 18TH CENTURY

Production of strategic minerals for United Nations war industry has resulted in the greatest impulse to the development of Brazil's immense mineral wealth since the discovery of gold in large quantities at the turn of the 18th Century.

The 1943 production of four of the most important strategic minerals coming from Brazil—quartz crystals, industrial diamonds, manganese and mica—is estimated at $30,000,000, says Lester J. Kelly, writing in "Brazilian Business," published by the American Chambers of Commerce in Brazil. Output of quartz crystals, particularly, has been stepped up greatly to meet United Nations war demand. Mr. Kelly says the value of the 1943 crystal output may have been as high as $15,000,000.

Whereas it was gold which first gave mining its start in the State of Minas Gerais, one of the greatest mineral areas in the world, the emphasis now is on production of iron ores, manganese, crystals, nickel and other industrial materials for shipment to United Nations war industry and for use in Brazil's fast-growing industries.

Summarizing the story of Brazil's mining program, Mr. Kelly presents these highlights of the wartime development:

IRON ORE—Brazil is estimated to have about 15,000,000,000 tons of the world's known iron ore deposits totaling about 72,000,000,000 tons. Exports of iron ores have increased from around 111,000 tons in 1936 to around 750,000 tons in 1943 and are expected to increase still further with the improvement of rail facilities from the seaboard up the Rio Doce Valley to the famous high-grade iron ores in the vicinity of Itabira. The Brazilian iron ore reserves, says Mr. Kelly, literally will be worth billions of dollars to future generations of Brazilians.

MANGANESE—Brazil's reserves of manganese ores, among the largest in the world, chiefly are located in the States of Minas Gerais and Matto Grosso. Exports have increased substantially to meet the demands of United States war industry. The 1943 output is estimated at around $4,500,000.

QUARTZ CRYSTALS—Brazil supplies virtually all the crystals used by United Nations war industry in the manufacture of radio equipment. As a result of wartime expansion, the value of the crystals now being mined exceeds that of any other Brazilian mineral.

DIAMONDS—Diamonds have been mined in Brazil for nearly 250 years and, with gold, shared early prominence in the rise of Brazil's mining industry. Brazilian industrial diamonds are among the strategic materials imported for United States war industry. The 1943 output of Brazilian diamonds is estimated at about $8,500,000.

MICA—More than a score of localities in Brazil are producing mica to help meet war needs, with 1943 output estimated at around $2,500,000. Brazil's mica output has become one of the chief sources of supply for United Nations war industry. Mica is indispensable in the manufacture of electrical equipment.

NICKEL—Preliminary surveys have been completed for the development of Brazil's nickel reserves, which some day may rank Brazil as the world's second or third largest supplier of nickel ores, Mr. Kelly says. Most promising nickel ores have been found in the vicinity of Sao Jose do Tocantins in the State of Goias.

BAUXITE—Brazil's output of bauxite rose from 7,000 tons in 1936 to 100,000 tons in 1942. Three concerns are extracting bauxite ores and three additional ones are being organized for further use of the extensive Brazilian bauxite deposits, especially those in the vicinity of Pocos de Caldas in the State of Minas Gerais.

Looking into the future, Mr. Kelly adds:

"Brazilian mineral deposits are not only important in terms of entrenched wealth, but they furnish the country with the raw materials

Club and Society Notes

Southwest Mineralogists

A brief report on our activities.

May 19—Mr. H. H. Cox spoke on iron in connection with the steel industry of the west. He also described a trip through the Kaiser Steel Mills at Fontana, California.

May 21—A field trip to the home of Mr. and Mrs. L. C. Gulley, of Venice. A very pleasant afternoon was spent viewing the large collections of minerals, crystals, old chinawear, glasswear, buttons, 4700 salt and pepper shakers, dolls, Indian articles, and etc.

The end of May brought to a close a very successful year. Our meetings and field trips have been well attended in spite of war work and rationing. We have made many new friends. Our Annual show had an attendance of over 1,000 visitors. Our monthly field trips have consisted of going to places of interest, such as: Museums, parks, members' homes, and to the beach. Wartime conditions have forced us to concentrate more on the Pot Luck Dinner than on the Rock Hunting angle. However, we are all looking forward to the many pleasant rock collecting trips to come. We have enlarged our library with more good books on minerals, gem stones, and lapidary work. It also contains quite a collection of magazines pertaining to our hobby. The study group has classified and catalogued the mineral cabinet. We are all looking forward to as successful a year next year.

June 2—Educational and Social Night. It was a very interesting meeting with Olive and Chas. Hermann, Co-chairman of the month.

June 23 and 30—Study nights under the direction of Mr. Eales.

June 25—A field trip to the Southwest Museum with a pot luck dinner at Sycamore Grove.

Jeane M. Lippitt, Corres. Sec'y
Southwest Mineralogists, Inc.
2508 Manhattan Avenue
Manhattan Beach, California

Los Angeles Lapidary Society

Eighty-five members of the L. A. Lapidary Society enjoyed a local field trip to the home of members Mr. and Mrs. S. P. Hansen in the Eagle Rock district. Under a spread of canvas over the patio, several tables were set where a potluck lunch was enjoyed. Rock trading, rummaging over the generous rock pile, and admiring the fine rock walls were enjoyed by all. Mr. Hansen has a den whose walls are covered with trophies of the chase, while a splendid collection of cut and polished stones are located in cases. The field trip was under the direction of Mr. Ben Maben, chairman, who plans many interesting and novel field trips for the future.

CHAS. G. SCHWEITZER
Librarian and Editor.

Colorado Springs Mineralogical Society

After an inactive period the Colorado Springs Mineralogical Society began a most satisfactory year in November, 1943, under the efficient and enthusiastic leadership of President George White.

Well planned programs have been enjoyed regularly by the members and many guests, including men in service at Camp Carson and Peterson Field. Following the talks by members, time is spent examining relative material contributed by collectors of hand specimens and viewing the mounts of the micromineral enthusiasts.

Topics presented have included:

Fluorescents
Minerals of California
Garnets
Minerals of Italy, Sicily, Elba, and Sardinia
Copper Minerals

Due to wartime conditions the usual summer field trips of the group have not been scheduled, though individuals occasionally manage a bit of collecting.

One of our members, Mr. Orville A. Reese, has spent some time recently in the northwest and in Mexico doing special work in connection with locating vital war materials.

—Mrs. Helen Sewell Caldwell, Sec't.

Texas Mineral Society

The new officers for the Texas Mineral Society are as follows:

President—Dr. L. A. Nelson.
Vice President—Mr. R. H. Hassell.
Sec'y & Treasurer—Mr. C. L. Doss
Board of Directors—Mr. A. L. Jarvis, Mr. G. E. Shackelford, Dr. H. A. Trexler, and the Retiring President, Mr T. D. Copeland.

The July meeting of the Texas Mineral Society was held on the 11th in the Baker Hotel. The speaker of the evening was Myron Everts, head of Arthur A. Everts Jewelry Company, one of the Southwest's leading jewelers. He lectured on gem stones, both genuine and synthetic. He displayed quite a few stones mounted, unmounted and gem rough during his lecture.

This lecture was followed by a business meeting and round-table discussion.

Mr. George Kadel will speak at the August meeting on color theory applied to minerals. Mr. Kadel is an instructor in the graphic arts at the Crozier Technical High School in Dallas. He is also a member of the National Association of Color Research. This meeting will be held on August 8th at the Baker Hotel.

WITH OUR DEALERS

V. D. Hill, of Salem, Oregon, who specializes in choice crystal specimens, features a number of them in this issue. Rush in your order as many of them may not last long!

Schortmann's Minerals, of Easthampton, Mass., have set aside a number of "One of a kind" Selected Specimens for September—for our readers. But do your selecting early!

Do you like wood opal limb casts? Robt. Roots, of Denver, Colo., has a nice stock of them on hand—and many other nice minerals. Be nice and order some!

Choice specimens from Arizona, California, and Utah are in the stock of J. Gisler & Son, San Francisco, Calif. Some of them should be in your collection!

Extra special are the nice doubly terminated calcite crystals in geodes and plates—is the announcement of the Eastern Mineral Exchange, of Bethlehem, Penn. Order an extra special specimen for your collection!

The H. E. Powell Co., of Little Rock, Ark., are featuring a new offering in Arkansas minerals which should interest all collectors. Are you interested?

All items listed in this issue are reserved for answers to our advertisement—Ward's Natural Science Est., Inc., Rochester, N. Y. Here is one good proof why collectors should receive ROCKS AND MINERALS regularly—to be posted on choice mineral specimens newly acquired by dealers.

A real treat just for you! So promise the Ozark Biological Laboratories, of Hot Springs National Park, Ark. If this has you on pins and needles—look their ad up and accept their offer! Gosh, everybody likes to be treated!

Quartz crystals of finest quality are in my stock, says J. L. Davis, of Hot Springs, Ark. Nothing is too good for our readers, Mr. Davis, so be prepared for an avalanche of orders!

James W. Riley, of Springfield, Ohio, has a September special in this issue. Better look it up as it is a specially nice one!

Some very attractive xled native coppers, from a new find in Nevada, have been acquired by Chas. O. Fernquist, of Spokane, Wash. This popular dealer is always getting something new to intrigue his many customers.

Superb specimens but only one of a kind—so be sure to include 2nd and 3rd choices when sending in your order to The Wiener Mineral Co., of Tucson, Ariz.

Texas fluorescent and phosphorescent calcites are among the most spectacular known. Some very nice specimens are offered by Frank Duncan and Daughter, of Terlingua, Texas. How many do you want the young lady to send you?

A new advertiser this month is R. L. Taylor, of Battle Mountain, Nev., who is stocking up heavily to become a regular dealer in minerals. His specialty is choice Nevada gem minerals.

The Colorado Gem Co., of Bayfield, Colo., is with us again but they are featuring neither gems nor minerals—not even rocks. Better look their ad up!

Perhaps the first dealer in the country to announce the appearance of the long awaited 7th edition of Dana's *System of Mineralogy* is Warner & Grieger, of Pasadena, Calif. But this company is always among the FIRSTS in the country.

Another new advertiser this month is Everts L. Horton, of Bethesda, Md., whose choice specimens for collectors should make interesting reading. Start at the top so you will not miss anything!

You'll be sorry if you do not get some of our fine nodules—West Coast Mineral Co., of La Habra, Calif. Heed this warning NOW, or you will be sorry!

New Jersey Mineralogical Society

The following officers have been elected for the coming year:

President—Joseph D'Agostino.
Vice-Pres.—H. E. Millson
Vice-Pres.—Dr. H. P. Walther.
Secretary—G. R. Stilwell
Treasurer—Miss E. Hensel
Librarian—A. A. Surina.
Curator—Dr. A. C. Hawkins.

G. R. Stilwell, Sec.

Paricutin to be Inspected by Dr. Bullard

Mexico's newest and most ebullient volcano, the year old Paricutin, is soon to get a thorough going-over at the expert hands of Dr. F. M. Bullard, of the University of Texas. Dr. Bullard has called the appearance of the volcano one of the most important geological happenings of our era.

Superb Specimens

ONE OF A KIND

CASSITERITE—Araca, Bolivia. A 4½ lb. group of superb crystals, 3½"x3½"x4, **$75.00**

HODGKINSONITE—Franklin, N. J. A splendid specimen of this rare mineral. 2"x2½"x1½", **$6.00**

ZINCITE—Franklin, N. J. An extremely fine specimen, completely lamellar in structure. 5½"x3½", **$12.50**

HEMATITE STALACTITE, Bisbee, Ariz. The pick of this unusual mineral from our recent find at Bisbee. 2½"x3½", **$5.00**

BROCHANTITE—Bisbee, Ariz. This specimen a group of deep green intergrown crystals. A beauty. 2"x2½", **$5.00**

VARISCITE—Fairfield, Utah. A polished half of variscite nodule lovely green in color. 4"x4½", **$12.50.** 20% Federal Tax.

BERYL—Groton, New Hampshire. Crystal ½"x3½". Matrix 4"x 4", **$5.00**

LAPIS LAZULI—Kokcha, Badakshan. Finest blue Siberian Lapis Lazuli in white Quartz matrix. 2½"x2½", **$12.50**

DIOPTASE—Tiger, Ariz. A wonderful specimen of these sparkling green crystals, 1½"x3½", **$7.50**

HEMIMORPHITE—El Potosi, Mex. Thousands of beautiful sword like crystals. Very fine. 3"x4", **$17.50**

DIABOLEITE—Tiger, Ariz. So rare that very few collectors have a specimen. 2"x3", **$15.00**

ALL PRICES PREPAID

The Wiener Mineral Co.

125 N. STONE AVE. **TUCSON, ARIZ.**